DOCUMENT RESUME

ED 301 771 CE 051 597

TITLE	Presentation of the National Center for Research in Vocational Education Berkeley, California at the AVA Annual Conference.
INSTITUTION	National Center for Research in Vocational Education, Berkeley, CA.
SPONS AGENCY	Office of Vocational and Adult Education (ED), Washington, DC.
PUB DATE	Dec 88
NOTE	49p.; Papers presented at the Annual Conference of the American Vocational Association (St. Louis, MO, December 1988).
PUB TYPE	Collected Works - Conference Proceedings (021) -- Reports - Descriptive (141)
EDRS PRICE	MF01/PC02 Plus Postage.
DESCRIPTORS	*Educational Research; *Information Dissemination; Institutional Mission; Institutional Role; *Organizational Objectives; *Research and Development Centers; *Research Projects; Services; *Vocational Education
IDENTIFIERS	*National Center for Research Vocational Educ CA

ABSTRACT

This collection contains the following conference presentations about the National Center for Research in Vocational Education at the University of California at Berkeley: "Visions and Principles" (Charles Benson); "How the Center Sees Its Role" (Gordon Swanson); "The Research Agenda" (Sue Berryman); "The Service Agenda" (Jeannie Oakes); "Dissemination" (Peter Seidman); and "Organization" (Gerald Hayward). Appendixes include a list of contact persons at the National Center; the center's 1988 agenda; and a brochure outlining the center's mission, research agenda, and available services. (MN)

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Presentation of

The National Center for Research in Vocational Education

at the

AVA ANNUAL CONFERENCE

December, 1988

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VISION AND PRINCIPLES

Charles Benson, Director

(See charts at end of presentation)

I am deeply honored to be introduced by Gordon Swanson, a person who has carried such heavy responsibilities in the development of the American Vocational Association. He is a central figure in the history of this Association, and we are all deeply indebted to him for his leadership over the years.

The National Center for Research in Vocational Education has been established at the University of California, Berkeley. As Director of the Center, I welcome you to this session of AVA's annual meeting. Modesty forbids, but I think it fair to say that the Berkeley campus offers the Center a strong base in research. While we look forward eagerly to establishing an innovative, functional set of service programs, we regard the Center as a research institution in the first instance.

Before turning to my topic, I would like to say a few words about the structure of the new Center. The Center at Berkeley operates with the assistance of five major sub-contractors. They are the Institute on Education and the Economy at Columbia University, the Universities of Illinois and Minnesota, Virginia Tech, and the Rand Corporation. Please allow me quickly to dispel a possibly erroneous notion: we have not and we will not operate as a set of full-service, duplicative, regional institutes. Each sub-contractor was chosen for special capacity in a particular line of research and, in some cases, for a special capacity to serve as the national site of one of our service functions.

We have an internal competition for research and service awards that is directed by the Center at Berkeley. In developing our work program for a given year, e.g., in assessing the priority, functionality, and methodological soundness of research proposals, we rely in significant degree on counsel of panels of practitioners and researchers outside the Center, members of our "Center Resource Roster." Members of the Roster also help us evaluate research products and service activities. Once a year's program for the Center is in place, we turn from a competitive mode to a cooperative one. Individuals in the Center and the sub-contracting institutions are expected to assist each other,within and across institutional lines, as needed and on call, to solve problems that crop up either in research projects or in service functions. All of our work is closely and effectively monitored by OVAE, for which assistance we are deeply grateful.

From the time some two years ago when we began preparing our proposal to the U. S. Department for a planning grant to assist us in developing a Center proposal, we worked under a set of "guiding principles," and I would like now to lay these before you.

1. Employability — Broadly Conceived and for the Long-Term

   Employability is a concept that may pertain to the individual or to the community. For individuals, it involves the process of becoming task-oriented and becoming prepared to perform the tasks at an acceptable standard of performance. The long-term implies that the individual's task-orientation allows the person to be competitively mobile in the sense of moving up the ladder of success within an industry and moving from one ladder to the next within or among industries.

   For the community, employability becomes a concern involving context, a concern about whether the community has an expanding capacity to choose the routes to distinctiveness, to absorb technological progress and to avail itself of the dividends of generating quality in

products, services, and the environment. Often described as a community's willingness to engage in economic development, the critical factors are likely to be the readiness of entrepreneurs to become better employers, the readiness of employers to adopt new technology, and the readiness of the community to allow concern for employability to be informed by inquiry.

2. Integrating Academic and Vocational Education for All Students

This principle covers treacherous territory with regard to the structure of education. One cannot discuss a guideline for all students unless the structure of the system provides opportunities for the principle to guide all schools at all levels. Neither vocational nor academic education is adequately available in all schools, but to inquire into the desirability of integration is, nevertheless, a laudable research goal and guiding principle.

We are encouraged in our research by three current findings.

(i) Studies in cognitive science suggest that large numbers of students, possibly a large majority and covering a wide range of abilities, learn abstractions more readily in a practical setting than in a mainly academic setting.

(ii) One of the important characteristics of successful schools is a spirit of collegiality among teachers, in the sense that teachers collaborate in each others' work; preliminary findings likewise suggest the efficacy of collaboration among students.

(iii) Students who take "math-related" vocational courses show significant gains in understanding of mathematical ideas. Time prevents me from talking about the connection between these research results and the desirability of integration of curricula, but I am sure that would not be necessary for this audience anyway.

3. Emphasis on Program Outcomes as Well as Program Access

The search for equity in vocational education is sometimes defined as access to programs, meaning that members of different at-risks groups are assured of at least proportional representation in vocational programs--somewhere. Providing access absent attention to the quality of program outcomes for at-risk populations is an inefficient equity goal. Acceptable program outcomes are essential, and the possibility of expanding program outcomes through research is the goal of this principle.

Under this guiding principle, we have set underway projects on the recruitment, training, induction, and re-training of vocational education teachers. We are exploring alternative delivery systems for vocational education, and we are identifying and describing programs of high quality that serve at-risk populations.

4. More Attention to Post-Secondary and Adult Vocational Education

This guiding principle is, to a certain extent, corrective of an earlier imbalance in vocational education research. The highest rates of growth in the field are to be found at the post-secondary level. Post-secondary programs offer flexibilities in patterns of staffing and student attendance that are less characteristic of secondary offerings. Some post-secondary programs reach a high level of technical sophistication.

We are impressed by three current developments in post-secondary and adult vocational education.

(i) The first is the involvement of post-secondary institutions and the providers of adult education in the training and re-training activities of large corporations, corporations under domestic and foreign ownership both.

(ii) The second is the effort being made to establish a much greater degree of articulation between secondary and post-secondary curricula, e.g., the "2 + 2" program.

(iii) Third is the role of community colleges and technical institutes in the process of technology transfer, under which these institutions serve as a kind of information broker as between the sources of industrial design in universities and the suppliers of new types of equipment, on the one hand, and small and medium-sized businesses, on the other.

5. Practice-Sensitive Research and Research-Sensitive Practice

My time is running out, and I must abbreviate my comments. To reverse the order of the above principle, we seek to involve practitioners in all of our research projects, not as members of advisory committees but as actual participants. We hope by this means that practitioners will acquire a sense of ownership of research processes, with the result that applicable research findings will be incorporated in practice more quickly and thoroughly.

Likewise, and this will be harder (I am glad the Center has a multi-year grant), we seek to involve researchers in practice, in order that the design of research projects becomes more fully informed by the realities of instructional activities.

6. Collaboration with Mainstream Research in Education and the Social Sciences

This guiding principle represents an effort to broaden the base of vocational education research, to enlist a larger community of scholarly talent and to subject the work of the Center to critiques from all sides. Some of this goal has been built into our organizational structure. But much is an unfinished journey—the effort to define problems more carefully and to solve them more expeditiously.

NATIONAL CENTER FOR RESEARCH IN VOCATIONAL EDUCATION

UNIVERSITY OF CALIFORNIA AT BERKELEY

with subcontracts to:

University of Illinois

University of Minnesota

RAND Corporation

Teachers College, Columbia University

Virginia Polytechnic Institute and State University

GUIDING PRINCIPLES

1. EMPLOYABILITY, BROADLY CONCEIVED AND FOR THE LONG TERM

2. INTEGRATION OF ACADEMIC AND VOCATIONAL EDUCATION FOR ALL STUDENTS

3. EMPHASIS ON PROGRAM OUTCOMES, AS WELL AS ACCESS

4. MORE ATTENTION TO POSTSECONDARY AND ADULT LEARNING

5. PRACTICE-SENSITIVE RESEARCH, RESEARCH-SENSITIVE PRACTICE

6. COLLABORATION WITH MAINSTREAM RESEARCH IN EDUCATION AND THE SOCIAL SCIENCES

HOW THE CENTER SEES ITS ROLE

Gordon I. Swanson, Associate Director

To careful observers, all periods are ones of transition, the sources or importance of change is seldom evident except in retrospect. Even the most present-oriented observer of education and training policy cannot fail however, to notice current changes which are deep and quick. Here are some examples:

(a) Federal funding of R&D declined 33 percent in the last 7 years (GAO Report).

(b) In the teaching of vocational skills to semi-literates, dramatic successes have been demonstrated when linking basic and vocational skills. Achievement rose rapidly in (1) technical skills, (2) reading and (3) job performance. This is in dramatic contrast to the usual remedy, namely, push harder on academics as a prerequisite to everything. (Training - The Competitive Edge, Jerome Rosaw and Robert Zager (WAAI) Josey Bass, 1988).

(c) Grant Foundation Commission on Work, Family & Citizenship concluded that on average, each college student receives a public subsidy of $20,000 over 4 years. Of non-college students, only 5 percent get any help and then it is less, on average, than $2,300.

They conclude: that non-collegiate settings deserve much more recognition and support. They recommend that Community Colleges and Technical Institutes cooperate with high schools in providing high quality vocational technical education and, further, they propose new legislation, a "Youth Opportunities Demonstration Act" to implement it.

What does this say to us?

1. The decline in federal funding of R&D should not be greeted with indifference by the vocational education community.

2. None of the quick and deep changes occurred as a consequence of federally funded educational research.

3. No database exists which would lead to a definition of the basic problem.

4. Policy-oriented research is in very short supply, especially that which goes beyond current structures and fine tuning.

The National Center for Research in Vocational Education sees its role as bringing new vigor and new vitality to the research agenda for vocational education — at policy levels, at program levels and within institutions. To do this, moreover, in anticipation of expected change and not only in response to change.

The Center sees its role as one of opening doors of opportunity for:

(a) individuals,

(b) institutions, and

(c) the field of vocational education in its service to the work force.

And we will not diminish our vision of the American dream, one that must be built upon well-paid employment, a deserved reputation for product/service excellence and justifiable pride in community.

THE RESEARCH AGENDA

Sue Berryman, Site Director
Teachers College, Columbia University

(See chart at end of presentation as well as "Guiding Principles" following Benson)

Given the brief time, let me review our research issue areas from the perspective of the National Center for Research in Vocational Education (NCRVE) guiding principles.

1. Goals, Planning and Evaluation

   This issue area concentrates on the context for vocational education — the restructuring of the American economy in terms of its implications for skill requirements — and on the nature of and failures in the signalling system that links changes in the economy to training providers. The NCRVE principle most germane here is employability, broadly conceived and for the long term. As the economy restructures, job content is changing rapidly enough to raise profound questions about old accountability standards for vocational education: matching vocational educational training to the job. The challenge for vocational education is to equip its clients to accommodate changes in labor markets over time.

2. Curriculum and Instruction

   Early in our history Gordon Swanson wisely advised us not to invest resources in a new curriculum for "x" or "y". Here we are concentrating on working out another guiding principle: providing the theoretical and empirical underpinnings for an idea that many are talking about; few, if any, know how to implement; and none know the effects of — the integration of academic and vocational education for all students. Much of the work here comes out of pioneering research in cognitive science and cognitive psychology that examines how individuals build expertise in non-work settings.

3. Special Populations

   This issue area directly reflects the Perkins Act. However, the special spin we have put on it is a concern for program outcomes, not just access.

4. Vocational Education Professionals

   The national debate about the professionalization of teaching is being carried on without asking whether the paradigms for thinking about this question apply to vocational education teachers. The NCRVE principle that we bring to this issue is that of integrating vocational education concerns into the mainstream of educational research and debate.

5. Alternative Delivery Systems

   Work-related education in the United States is delivered through several different systems, not just through vocational education — for example, through military training. What can we learn from these other systems that might be germane to the delivery of vocational education? What are the effects of these different systems for student outcomes? Our guiding principles here are, again, an emphasis on program outcomes as well as access and increased attention to postsecondary and adult education.

6. Governance and Policy

How do we get change in the vocational education system? This issue area concentrates on understanding the properties of the system from the perspective of available levers for and barriers to change.

Three basic principles govern how the NCRVE will conduct its research and how it will shape its research agenda.

First: Our research will aggressively integrate mainstream research in education and the social sciences with that in vocational education. We now have two research communities that do not benefit from each other's strengths. This has got to stop. The challenge is too large and the resources too small to afford the luxury of this division.

Second: Our research agenda is dynamic and is framed in interaction with many client groups. For example, each of our second year research proposals were reviewed by five outside peer reviewers from the field. Leaders in the vocational education community are joining us at our Board of Directors meetings to help us set our agenda.

Third: We take seriously one of our principles: practice-sensitive research and research-sensitive practice. We do not know how to do this yet; we will make mistakes as we learn; we are committed to figuring out what this should look like.

RESEARCH AGENDA

1. GOALS, PLANNING, AND EVALUATION

2. CURRICULUM AND INSTRUCTION

3. SPECIAL POPULATIONS

4. VOCATIONAL EDUCATION PROFESSIONALS

5. ALTERNATIVE DELIVERY SYSTEMS

6. GOVERNANCE AND POLICY

NCRVE, Berkeley

THE SERVICE AGENDA

Jeannie Oakes, Site Director
The RAND Corporation

(See chart at end of presentation)

While the National Center for Research in Vocational Education has a specific set of service activities, all activities of the Center are seen through three lenses:

1. Research — What new knowledge can be gained from this activity?

2. Service — How can this activity assist professionals engaged in vocational education policy making and practice?

3. Dissemination — Broadly conceived (as Peter will elaborate) - How can this process and products of this activity be made into useful and useable forms accessible to the education community?

While all services of the National Center are coordinated at the University of California at Berkeley, there is a special "service" emphasis at some sites.

A few examples —

The **University of Minnesota** is taking the lead in the area of Leadership Development with overarching purpose "to help vocational programs respond positively to the changes levied against them, to help them adjust to the rapid shifts in the environment over which they have no control, and to anticipate future changes so that vocational education can shape debates over the role of education rather than merely react to them."

Such a purpose adds to the concept of enabling change the concept of effective management. For example:

1. Envisioning the future is a cooperative venture of the National Center for Research in Vocational Education and the National Association of State Directors of Vocational Education. Through national teleconferences and set of tapes this leadership development project will engage vocational educators in discussions of issues with nationally recognized experts.

2. Making Leadership Development Part of Graduate Education is a project which in its beginning stages will work with the University Council for Vocational Education to develop and implement courses, materials, and workshops to be made available to institutions offering graduate programs.

Virginia Polytechnic Institute and State University is taking the lead in our Inservice Education activities.

The purpose of the inservice education function "involves the integration of research and practice through in-service education activities that build the capacity of vocational educators and their colleagues to bring about informed curricular, instructional, organizational, and policy changes essential to vocational education's meeting the needs of a changing work environment and work force."

Two Examples —

- collaborative efforts are currently under way with the Southern Regional Education Boards, State Vocational Education Consortium. Thirty one project sites are working on the integration of academic skills and vocational education. Included here is an investigation of innovative, cost-effective strategies to be done in conjunction with the Bay Area Writing Project.

- The National Center and the American Association for Community and Junior Colleges are collaborating on a project to help upgrade the technical and professional skills of community college instructors, particularly part-time faculty.

The University of Illinois is taking the lead in Technical Assistance for Special Populations.

Examples of Illinois' work are:

1. workshops, e.g. pre-AVA Conference
2. developing a resource guide and referral service, toll-free hot line
3. producing two issues of Interchange (nationally distributed newsletter)
4. Developing information data base for exemplary programs and practice.

In 1988, the special needs focus was on 1) strengthening the transition of special needs students to work place or continuing education; and 2) developing policy options for the improvement of special needs programs and services.

The 1989 focus will be on 1) immigrant and limited English proficient students; 2) potential dropouts; and 3) teen parents.

The two targets of the Special Needs initiative are:

1. disseminating information to individuals
2. building institutional and organizational capacity.

RAND is helping to develop information base that will be the foundation for technical assistance for state planning and evaluation.

RAND is conducting a 50-State Survey with the objective to produce a data base about state policies and practices in vocational education including:

— governance and financing issues
— institutional issues at the secondary and post-secondary level (e.g., coordination, respective roles, program delivery
— teacher policies (e.g., certification, regulation, testing, recruiting)
— Curriculum (e.g., mix of applied and academia at secondary level
— programs and practices for special populations
— other job training policies

The Guiding Principle "Practice Sensitive Research" reminds us that service activities are more than the distribution of a "good" to others — it implies that new methodology strategies must be developed for both research and the delivery of services to the field. Good research in Vocational Education can only occur when it's closely connected to actual practice.

SERVICE AGENDA

1. LEADERSHIP DEVELOPMENT

2. IN-SERVICE EDUCATION

3. DISSEMINATION

4. INFORMATION FOR NATIONAL PLANNING

5. TECHNICAL ASSISTANCE FOR SPECIAL POPULATIONS

6. TECHNICAL ASSISTANCE FOR PLANNING AND EVALUATION

7. COORDINATION BETWEEN VOCATIONAL EDUCATION AND JTPA

NCRVE, Berkeley

DISSEMINATION

Peter Seidman, Director of Dissemination

(See charts at end of presentation)

The concept of two communities — research and practice — in constant, inevitable conflict — pervades interpretations of why so little research ever gets implemented; and has become a self-fulfilling prophecy.

I believe that it is far more heuristic to realize that only God is omniscient, and, therefore, we should view the broad professional context within which we work as filled with multiple communities, equal to each other, each at times a producer of knowledge and at other times a user of knowledge.

Because each one of us is at times a producer and at other times a user of knowledge, the need is acute for each of us to be sensitive to all the communities with whom we deal, sharing knowledge between and among each other; accepting and listening as well as giving and assisting.

We must avoid building hierarchies between and among these communities as well as between and among the differing types of knowledge with which all of us will be dealing.

Anthropologists are fond of talking about the "mythical they" to whom their informants attribute every rank, foul and evil thing that befalls the informant's culture.

We can have no mythical they's. As individuals, institutions and communities, we either must view each other as part of the same community or as part of another community with whom we are able to work in a participatory manner.

We must reject the perception that there are "insiders" and "outsiders".

Thus, the dissemination function of the National Center for Research in Vocational Education has as its mission to integrate knowledge producers and knowledge users into a **shared** effort at renewing vocational education through the production and use of **useful** knowledge developed and disseminated in a **usable** manner.

Thus, the Center's dissemination function seeks to develop practice-sensitive researchers and research-sensitive practitioners.

Dissemination is a service function of the Center. The services the dissemination unit offers are:

1. to **collect and translate**, for our constituencies, research-based knowledge, practitioner-based knowledge, and policy-based knowledge in ways **useful** to them and **usable** by them;

2. to **move** that knowledge in its **useful, usable** form to the constituencies who need it, request it, and so on;

3. to **build** individual and institutional **capacities** in researchers, practitioners and policy-makers

   — to do their own translations; and

   — to produce knowledge that users need in a manner that users need it.

The **Center**'s dissemination activity will create three structures through which it will fulfill its mission:

1. an information clearinghouse;
2. issue networks developed around Center-sponsored, research projects; and
3. networks of schools geographically located around each of the six, Center-subcontract sites.

THE CLEARINGHOUSE

The overall mission of the Clearinghouse is to operate as a broker of a variety of information services, products and human resources to educators at all levels. To this end, the Clearinghouse will carry out a number of related and mutually supportive activities:

First, publishing and distributing a variety of papers, reports, and monographs generated by the Center's research and service activities.

Second, developing and distributing a variety of information products (e.g., "on-demand" bibliographies from searches of the Clearinghouse databases, and syntheses of major issues).

Third, operating and searching databases, including a human resource file, in order to generate customized responses to clients' requests, and

Fourth, publicizing our services.

ISSUE NETWORKS

However, centralized brokering of information and resources is not sufficient if the **Center** is to achieve its dissemination mission.

To conceive of dissemination solely as the activities the **Clearinghouse** performs, is to view educational researchers, practitioners and policy-makers as passive recipients of information.

The Center will not only produce and enable use of high-quality, research-based knowledge, but also will enable the innovative production and use of practitioner- and policy-based knowledge in vocational education.

Toward accomplishment of this mission, we will develop two types of networks.

The first type are issue networks of researchers, practitioners and policy-makers. Such networks will in all cases emerge from specific research projects of the National Center.

The intent of these networks is:

- to establish and implement a participatory research and dissemination design for the vocational education enterprise; and

- to build the capacity of individuals and institutions to design and implement their own dissemination strategies.

NETWORKS OF SCHOOLS

Issue networks will be oriented around specific researchable concerns. However, change agents have come to realize that an institution as a whole may need to be reformed before any specific practice within that institution can be changed. Therefore, it is necessary, in thinking about the dissemination and implementation of new practices, to form networks of institutions rather than relying **solely** on networks of individuals interested in a particular issue.

Networks of schools have the power to encompass the variety of influences within an entire institution. Networks of schools will be established around the six Center subcontract sites. These networks:

- will carry out research (including research initiated by practitioners),
- will experiment with new methods,
- will institute participatory research and dissemination designs,
- will discuss issues that span the Center's six Issue areas, and
- will build the capacity of individuals and institutions to design and implement their own dissemination strategies.

CONCLUSION

Thanks for the opportunity to present the Center's agenda for meeting its dissemination mission . . . that is, of integrating knowledge producers and knowledge users into a shared effort at renewing vocational education through the production and use of **useful** knowledge developed and disseminated in a **usable** manner.

DISSEMINATION

SERVICE FUNCTION

MISSION

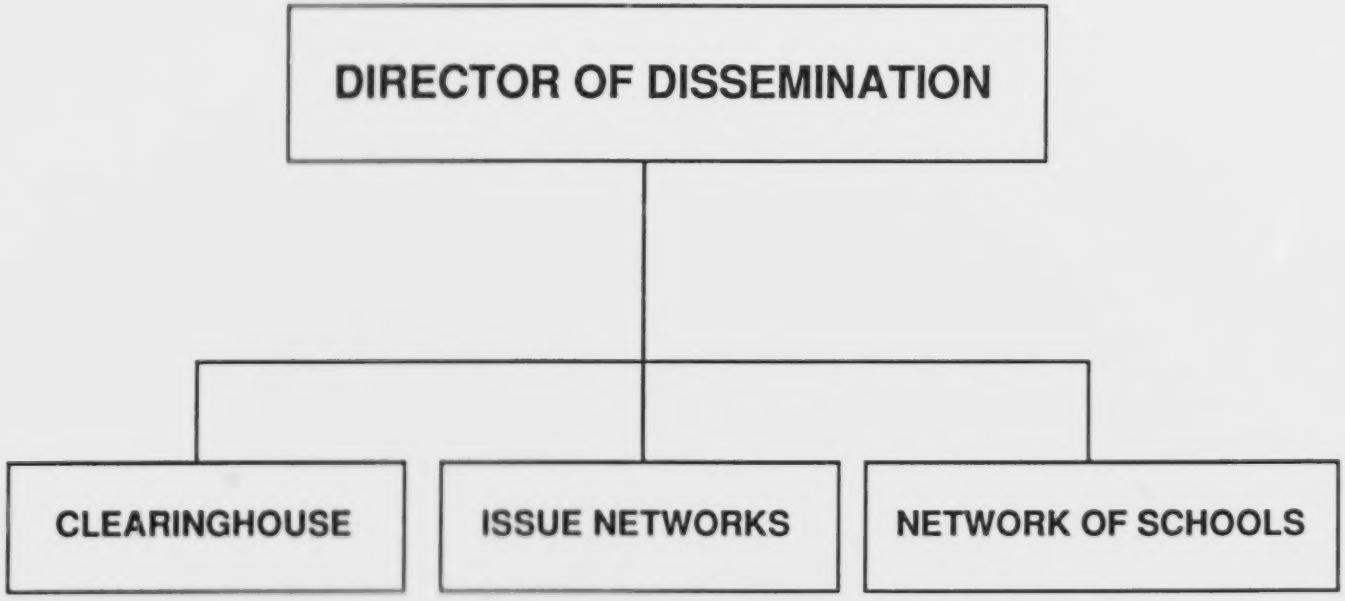
Integrate knowledge producers and knowlege users into a shared effort at renewing vocational education through the production and use of useful knowlege developed and disseminated in a usable manner.

SERVICES

- translate knowledge into useful and usable forms;
- move this knowledge to our clients;
- build individual and institutional capacities in researchers, practitioners, and policymakers to 1) do their own translations; and 2) present knowledge in a form that meets users' needs.

NCRVE, Berkeley

DISSEMINATION AT THE NATIONAL CENTER



NCRVE, Berkeley

ORGANIZATION

Gerald Hayward, Deputy Director

(See charts at end of presentation)

To realize our vision for the National Center for Research in Vocational Education and to carry out the research and service agenda we have set for ourselves, the University of California, Berkeley has subcontracted with five institutions. The Center headquarters and locus of primary administrative functions and certain centralized service functions is Berkeley.

Service functions centralized at Berkeley include:

Dissemination, including an information clearinghouse
Technical Assistance for Planning and Evaluation

Berkeley and each of the subcontracting institutions will have major responsibility for conducting research. There will be however, additional responsibilities for performing special service functions that are **not** centralized at Berkeley:

Leadership Development, University of Minnesota
Office of Technical Assistance for Special Populations, University of Illinois
In-service Training, Virginia Tech.

At each site, a site director will oversee the research and service projects.

Decentralizing research and some of the service activities among the five subcontracting institutions may appear to complicate the management of the National Center. However, there are substantial benefits from being able to tap the breadth and depth of expertise which now exists among the subcontractors. It also is a tremendous advantage to be diverse geographically and to be positioned to maintain close contact with different regions of the country. In sum, we hold that the advantages of multiple locations with variety in expertise and regional coverage far outweigh any disadvantages created by the more complex organizational structure.

We have chosen as our model for organization and management a dual structure: the first part, **policy development** emphasizes broad, participatory involvement both from the sites and from the vocational education community. Establishing the research and service priorities of the Center is a good example of a policy development activity. For this function the Center wants, and is best served, by the widest possible participation with the six institutions of the Center working with advisory groups from outside the Center (e.g. State Directors, AVA, American Association of Community and Junior Colleges). The second aspect, **policy implementation** requires a more traditional, centralized, hierarchical structure which holds institutions and individuals fully accountable for their performance. As an example, subcontractors are specifically accountable for the quality of their work. Substandard work may result in smaller allocations of future resources. Since in effect the subcontractors compete with one another for the limited pool of research and service dollars, there are substantial incentives to do their work well. We are introducing private sector incentives to public sector work.

We think that this dual structure achieves many of the advantages of both centralization and decentralization. It allows the Center to draw on the riches of the six nationally-prominent institutions, yet incorporates the controls necessary to insure the quality of the Center's products.

The policy development structure includes the following:

Board of Directors — The Director, Associate Director, Deputy Director and each of the site directors comprise the board. Among its functions is to advise the director on:

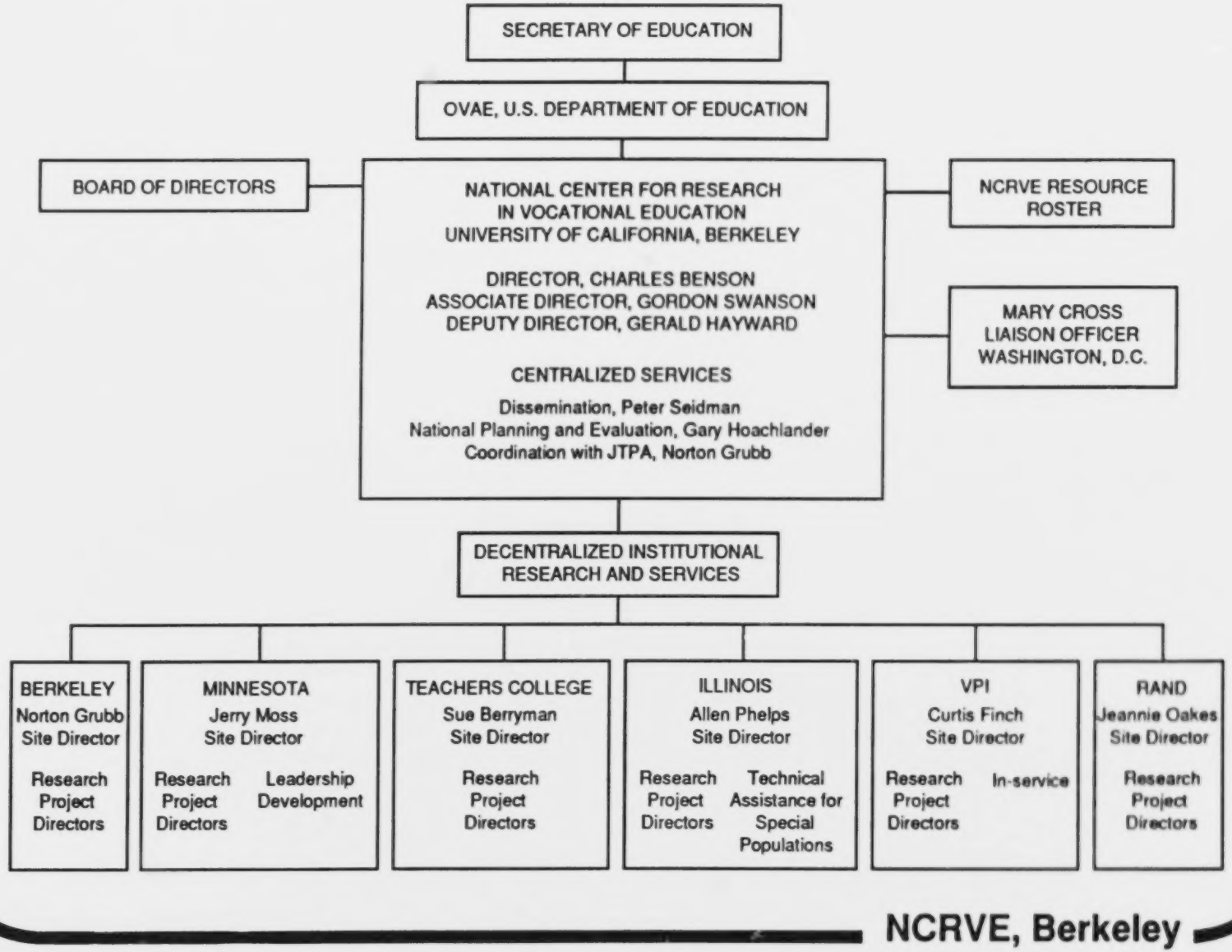
-the general direction of research and service activities the Center plans to pursue,
-the appropriate allocation of Center resources among research and service functions,
-the specific research and service projects which should be funded.

Center Resource Roster — members of the Center Resource Roster are selected by the Director with the advice of the Board to broadly encompass the most knowledgeable individuals who have specific talents in institutional strategic planning, or expertise in one of the research issue areas or service areas in which the Center is engaged.

The Policy Implementation structure includes:

Director and Associate Director — both at Berkeley — the buck stops here!
Deputy Director — responsible for the day to day management of the Center employees
Centralized Function Administrators — e.g. clearinghouse
Site Directors — accountable for the research and decentralized services provided at their respective sites.
Principal Investigators — responsible for their individual projects.

ORGANIZATION CHART



NCRVE, Berkeley

HOW RESEARCH PROJECTS ARE SELECTED

- ANNUAL PRIORITIES ESTABLISHED BY BOARD AND RESOURCE ROSTER
- REQUEST FOR PROPOSALS ISSUED TO SIX PARTICIPATING INSTITUTIONS
- PROPOSALS REVIEWED BY PRACTITIONERS AND ACADEMICS
- BOARD MAKES RECOMMENDATIONS TO THE DIRECTOR OF NCRVE
- DIRECTOR HAS FINAL AUTHORITY FOR SELECTING AND FUNDING PROJECTS

APPENDIX

NATIONAL CENTER FOR RESEARCH IN VOCATIONAL EDUCATION

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APPENDIX

The 1988 Agenda for the National Center for Research in Vocational Education

The Mission

The Center's mission is to rethink what vocational education should be and how it can best be delivered. It is to contribute to the renewal of vocational education so it can give all citizens, of all ages, the skills they need for successful, long-term employment. To accomplish this, we must integrate vocational education and educators with general educational theory and practice. We must find ways to make vocational programs sensitive to rapid changes in the economy and in educational needs. We must help vocational education anticipate future changes so it can shape debates over the role of education rather than merely react to them. Our clientele are *all educators*, and *all students*. We believe that all students and all employers will be better served by an integrated view that combines theory and practice, the "academic" and the "vocational." Our goal is to make this new vision of work-related education a reality.

A. Research Project Descriptions

If our mission is to renew education — to help it respond to changing conditions — then our research programs must look at the most crucial elements of change and identify ways for vocational education to respond. The six issue areas of our research agenda reflect our strategy for doing that.

I. Context, Goals, Planning and Evaluation

To define the goals of vocational education more clearly, we're examining how both the nature of work and the demographic characteristics of students have changed. We are also investigating how different forms of learning (both formal and informal) affect economic outcomes over a worker's life.

Project I.1 Redefining Skill Needs for the U.S. Economy in the 21st Century. Principal Investigator: *Thomas Bailey, Conservation of Human Resources, Columbia University*

This project will work towards a conceptualization of "skill" that will be relevant to recent developments in the workplace and the policy implications of the redefinition of skill needs.

Project I.2 Economic Change, Manpower Requirements, and Training. Principal Investigator: *John Zysman, Berkeley Roundtable on the International Economy*

Intense competitive pressures from America's trading partners and application of new technologies in production and communications are driving fundamental economic changes in both manufacturing and services. How our nation responds to these changes will largely determine our competitive position in the international economy, our standard of living and, quite possibly, the health of our democracy in the years to come.

This research program is intended to develop The Berkeley Roundtable on the International Economy's (BRIE) preliminary results on changing manpower requirements into detailed

descriptions of the kinds of skills now emerging as critical in two of the fastest growing and most important sectors of the U.S. economy: the so-called "high technology" electronics industries (including semiconductor equipment manufacturers, semiconductor firms, and computer firms) and producer services.

Project I.3 Educational Requirements of Skill-Intensive Production Strategies. Principal Investigator: *David Stern, U.C. Berkeley*

The research proposed here will describe the kind of educational preparation that has been necessary in a set of firms which have instituted new, skill-intensive production systems.

Project I.7 The Response of the Vocational Education System to Technological and Economic Changes in the Workplace. Principal Investigator: *Thomas Bailey, Conservation of Human Resources, Columbia University*

This project will examine how educators and trainers, both in firms and in the vocational education system, understand changing skill needs, how they have perceived the implication of those changes for their roles and how they have responded to their new perceptions. The project will also analyze the distribution of the training roles between the educational system and the workplace, relying on the basic distinctions between job-specific training and general education.

Project I.10 Linking Planning and Evaluation in Vocational and Technical Education. Principal Investigators: *Marion Asche, Deborah Strickland, Donald Elson, Virginia Polytechnic Institute and State University*

A concept paper will be developed which examines the problem of planning-evaluation linkages in three phases: (1) an overview/synthesis of current practice at secondary and postsecondary levels within the field of vocational education, (2) a review/synthesis of relevant research from the related areas of evaluation, planning, social change and decision making and, (3) on-site examination of selected exemplary sites for reality-testing of theoretical propositions and further identification of barriers to linking at local, state and federal levels.

II. Curriculum and Instructional Methods

We must translate the goals we've defined into practice. We're identifying ways to modernize the content of vocational programs to help them respond rapidly to changing economic and demographic conditions.

Project II.1 The Subject Matter of Vocational Education. Principal Investigators: *George Copa, University of Minnesota Robert Beck, University of Minnesota.*

This project will identify and generate consistent and coherent principles that clearly describe the curricular content of the general field and subfields of vocational education. This reconceptualization of the subject matter of vocational education will direct attention to the foundations of education and also to polytechnical education, with an international comparative component.

Project II.3 Who Gets What and Why? Curriculum Decisionmaking in Vocational Education. Principal Investigator: *Jeannie Oakes, The RAND Corporation*

This study will use case study data and student transcript data to examine the determinants of secondary school vocational offerings, and the factors affecting which students are

placed in various programs and courses. The study will help us understand the curricular decision making processes and the guidance and placement processes which take place at the state, district, and school levels. The findings of the study should enable policymakers, guidance counselors, and vocational educators to develop better strategies for ensuring that all students (and particularly those from special populations) have access to an appropriate mix of academic and vocational preparation.

Project II.4 Impact of Curricular and Instructional Design on the Structure of Knowledge and Its Integration, Use and Transfer on Further Knowledge Acquisition. Principal Investigator: *Ruth G. Thomas, University of Minnesota*

Usability and transferability of stored knowledge and the ability to independently acquire further knowledge are increasingly important in a rapidly changing world of work and social context. Integration of stored knowledge is increasingly important as the complexity of workplace tasks, problems and decisions increase. This program of research will develop and test curriculum designs and models that develop in learners integrated structures of stored knowledge relevant to work roles and problems of concern in vocational education and which is usable, transferable, and which facilitates further knowledge acquisition.

Project II.7 Computerized Adaptive Assessment of Basic Skills. Principal Investigators: *David J. Weiss, and David J. Pucel, University of Minnesota*

This project will develop a computer-administered test battery for assessing vocationally relevant skills in reading and mathematics. The test battery will will use state-of-the-art computerized adaptive testing procedures to insure both measurements of high precision and maximum efficiency of the testing process. Procedures will also be developed and implemented for identifying the minimum basic skill levels of occupations. These data will be combined with the individual skill measurements to provide a computer-generated individual interpretive profile of basic skills for use by educational personnel.

Project II.8 Research on the Effects of Training in Conflict Resolution and Cooperation. Principal Investigator: *Morton Deutsch, Teachers College, Columbia University*

The purpose of this project is two-fold: (1) to develop procedures for providing students with skills in managing their work-place conflicts more constructively and for working cooperatively with each other; and (2) to assess the value of such procedures. Systematic research on the effectiveness of procedures designed to enable students to better work cooperatively with others and constructively manage conflicts at work will be undertaken by comparing groups of students who have or have not been exposed to such training.

Project II.9 Technical and Symbolic Knowledge in CNC Machining Laboratory for Cognitive Studies of Work. Principal Investigator: *Sylvia Scribner, Graduate Center, City University of New York*

This research project will examine cognitive functioning associated with the introduction and use of CNC machines. It will describe the kinds of knowledge machinists traditionally depend on and the relation of this knowledge base to the abstract and symbolic skills required for programming CNC machines. This technology is particularly important because it serves as a prototype of changes in work which require a new amalgam of vocational-technical knowledge and abstract academic knowledge.

Project II.10 Designing and Testing Curriculum Planning Models. Principal Investigators: *Karen F. Zuga, University of Minnesota, James LaPorte, Virginia Polytechnic Institute*

Curriculum development theorists suggest varying conceptions of the curriculum. These conceptions are to be used to guide curriculum theorists within industrial arts/technology education to develop methods of curriculum planning which will achieve the liberal education goals of the subject matter. Methods of curriculum planning which fulfill the goals of industrial arts/technology education will be developed and disseminated.

III. Vocational Education for Special Populations

In view of changing demographic conditions, a growing portion of those needing vocational training will also need special help to benefit from it. We're looking at ways to improve existing programs for these special populations — students with limited skill in English, minorities and low-income students, the handicapped, single-parents, women seeking access to a broader range of occupations. If these programs successfully blend theory and practice, they can provide students with choices they have previously lacked. These students can gain access to post-secondary education or to superior jobs after completing a high school program.

Project III.1 Vocational Education in the Context of Programs for Pregnant and Parenting Teenagers. Principal Investigator: *Gail Zellman, the RAND Corporation*

This project will examine the administrative, attitudinal and policy context in which vocational education is provided to pregnant and parenting teenagers by school districts and other community agencies.

Project III.4 The Affective Studies Program for Special Needs Populations. Principal Investigators: *James Brown and David Johnson, University of Minnesota*

This project will: (a) seek to identify affective-related student characteristics that combine with cognitive and psychomotor characteristics to inhibit or enhance the transition of mildly handicapped students into their post-school lives; (b) develop procedures to assess and analyze pertinent affective student characteristics that enhance vocational education processes related to transitional programming; and (c) implement, validate, and disseminate these procedures and concepts, in combination with the use of existing technologies and support services, in order to maximize the benefits of vocational training experiences for handicapped learners.

IV. The Development of Personnel in Vocational Education

We can't make vocational education more responsive to changing conditions without reforming the preparation of vocational education teachers. We're studying the supply and demand for vocational teachers, evaluating the appropriateness of current training programs. We're also investigating ways that the teaching reform movement will impact the training of vocational education teachers.

Project IV.1 Vocational Teacher Education: A Context for the Future. Principal Investigators: *Mildred B. Griggs, University of Illinois Richard L. Lynch, Virginia Polytechnic Institute and State University*

This project will investigate the current status of vocational teacher education in this country, analyze the effects of reform in teacher education on vocational teacher preparation and foster networking on research related to vocational teacher education. A detailed

analysis of the nature and status of vocational teacher education as impacted by educational reform will be undertaken.

Project IV.2 Vocational Teacher Professional Development. Principal Investigator: *William G. Camp, Virginia Polytechnic Institute and State University*

This project will provide information about ways to improve the process of transition from full-time student to full-time teacher.

Project IV.3 Preparing Vocational Administrators. Principal Investigators: *Curtis Finch, VPI, Marilyn Rossmann and Jerome Moss, University of Minnesota*

This project seeks to identify the leadership attributes and professional competencies associated with vocational education administration, and based on this research, develop instructional sequences, programs and materials that prepare persons to function successfully as administrators.

V. The Delivery Systems of Vocational Education and Training

Vocational training happens in many places outside high schools and community colleges. We're looking at a wide variety of occupational preparation, asking how effective the programs are and how they relate to training programs in the traditional education system.

Project V.2 Using Cases of Exemplary Models of Vocational Education to Enhance the National Longitudinal Study. Principal Investigators: *Charles Harrington and Robert Crain, Teachers College*

This research will conduct case studies of vocational education units operated under several different models for service delivery (in postsecondary vs. secondary schools, in comprehensive vs. vocational-only schools, in single-occupation and multi-occupation units) to develop hypotheses about organizational characteristics that affect student outcomes. The researchers will assess the scope and quality of the data gathered on vocational education by High School and Beyond.

Together, these two tasks will permit project staff to make detailed recommendations for a vocational education component of the National Education Longitudinal Study, the next large national survey to be undertaken by the Center for Education Statistics.

Project V. 10 Learning From School-Based Work Experience Programs. Principal Investigators: *David Stern, University of California at Berkeley Charles Hopkins, University of Minnesota James Stone, University of Minnesota Martin McMillion, Virginia Polytechnic Institute and State University*

This project will gather information on student outcomes of various kinds of school-based work experience programs.

Project V.11 Magnet Vocational Schools: Are They Successful and for Whom. Principal Investigators: *Charles Harrington, Robert Crain and Vernay Mitchell, Teachers College, Columbia University*

This project will provide answers to four questions:

1. What are the various educational effects of vocational magnet schools?

2. How large are the self-selection biases which are introduced when schools are allowed to select their own students?
3. If a school is successful with highly able and motivated students, how likely is it to also succeed with a more ordinary student body?
4. Does a school need a "critical mass" of motivated and able students in order to maintain the quality of its teaching, curriculum and school climate?

VI. Governance and Policy

Work on this issue draws on all the rest of the Center's research because all reforms depend on appropriate governing mechanisms and effective policies. We're examining the current "system" of federal, state, and local policymaking in secondary and postsecondary vocational education. In our projects we are paying particular attention to cooperation and competition among the different institutions that provide vocational education.

Project VI.2 Alternative Policy Instruments in Vocational Education. Principal Investigators: *Lorraine McDonnell, RAND Corporation; W. Norton Grubb, University of California at Berkeley*

This project will assess an expanded set of approaches, and will identify the conditions under which a particular policy instrument is most likely to produce the effects policymakers intend, and the ways in which different instruments can complement and substitute for each other.

B. Policy Papers

One of the principles which undergirds the operations of the Center is the notion that vocational education must carry a balanced portfolio between research and development projects with a major emphasis on addressing the largest and most important questions of purpose and policy. In addition, we propose to address related significant policy issues through a number of succinct, focused policy papers, which we trust will be useful to the Congress, state officials and other interested policy makers as the critical time for reauthorization of the Perkins Act approaches. Importantly, these policy papers are consistent with the Issues Areas adopted by the Center.

Issue Area I: Context, Goals, Planning and Evaluation

Policy Paper: National Data Needs in Vocational Education. Principal Investigator: *Gary Hoachlander, Berkeley/MPR*

The paper will set forth a variety of policy options for handling national data needs during deliberations on the reauthorization of the vocational education legislation. It will address the following topics:

- the history of federal efforts to collect vocational education data;
- national, state and local requirements for data;
- frequency, breadth, and detail of data collection;
- analytic priorities, and
- recommendations for federal policy

Policy Paper: How Do People Become Experts in Work Settings? Principal Investigator: *Dr. Erwin Flaxman, Institute on Education and the Economy, Teachers College, Columbia University*

This project will produce a policy paper on the implications for secondary and post-secondary vocational education of research on how individuals build expertise in work settings. Specifically, it will document what we know about how individuals create expertise in the workplace; what challenges this research poses for school-based learning, especially for vocational education; and what major questions raised by this research still have to be answered before we can consider incorporating its implications into school curricula, pedagogy, and organization.

In the short run, we expect the paper to contribute to the thinking about the reauthorization of the Perkins Act's suggested areas of research. It should contribute to the thinking at the Department of Education about research priorities. It should also challenge and extend the educational policy community's ideas about effective schools. In the long run, it will help people rethink the nature and delivery of instruction.

Issue Area III: Vocational Education for Special Populations

Policy Paper: Special Populations in Vocational Education. Principal Investigator: *Allen Phelps, University of Illinois*

The Policy Options Paper to be developed by the Center will examine several key questions within the context of the Perkins Act:

- In what ways and to what extent do learners with special needs—i.e., the handicapped, disadvantaged and limited English proficient—have access to vocational education programs?
- What characterizes the most effective programs for individuals with specific special needs?
- What types of levels of outcomes are realized by students with special needs who participate in vocational education programs?
- Given the changing demographic and employment context, what policy recommendations appear most appropriate and feasible for future federal vocational education legislation?

Issue Area V: The Delivery System of Vocational Education and Training

Policy Paper: Retraining and Adult Vocational Education. Principal Investigators: *William T. Price, Jr., and Barry Reece, Virginia Polytechnic Institute*

Although adult learners represent a growing and important market for training, there is considerable unevenness in the planning and delivery of training and development services.

This project will involve an examination of adult training and development services offered by selected major providers such as the Department of Agriculture's Extension Service, industry training, military training, labor union training, private sector training companies, proprietary vocational school training, agencies providing professional certification, and training offered by secondary and postsecondary institutions.

Policy Paper: Economic Development and Postsecondary Vocational Education Principal Investigators: *W. Norton Grubb and David Stern, University of California, Berkeley*

This paper will bring greater clarity to discussions about economic development by analyzing the concept of economic development, evaluating those policies conventionally thought to enhance development, and studying the relationship of these investigations to postsecondary policies and practices meant to enhance economic development. Lastly, what guidance for sound federal policy can we glean from studying these theoretical and empirical issues?

Issue Area VI: Governance and Policy

Policy Paper: Exemplary Vocational Education Programs in Urban Settings. Principal Investigator: *Charles Benson, University of California at Berkeley*

This policy paper is designed to identify the most important characteristics of exemplary vocational programs in urban schools serving inner city youth. Schools in New York, Chicago, Detroit, Philadelphia and Los Angeles will be examined by skilled ethnographers to identify those characteristics of urban high school vocational programs which are generally recognized as having the the best vocational programs for inner city youth.

This monograph will have the dual goals of disseminating information about what works in these, the most difficult, school settings and outlining options for policy makers about the implications of the findings of the study.

C. Service Activities

As a national resource, the Center clearly has important service functions, but here too the watchword is integration. We intend to perform certain services at the sites of the subcontractors: Others will be conducted at Berkeley. All services will be performed as an integral part of the six issue areas on our research agenda. We believe that the Center's audience has valuable knowledge of its own. Its members should be active participants rather than passive consumers of our work. To be sure that information flows both ways, we are building networks of practitioners. These networks will enable experienced and enthusiastic teachers and administrators to share their knowledge and commitment with the broader teaching community.

Centralized Service Functions

Dissemination Director: *Peter F. Seidman, National Center For Research in Vocational Education*

Dissemination is the translation and movement of various types of knowledge from the producers of the knowledge (researchers, practitioners and policy-makers) to the users of these varying types of knowledge in ways **useful** and **usable** by them. The Center will use two methods to accomplish these ends.

A Clearinghouse will broker knowledge requests from the field, seeking customized responses.

Networks of knowledge producers and users will be established with the intent to build a participatory model for research, development, and dissemination that transfers beyond specific projects and schools involved in the networks. These networks will be based in R&D projects and in schools.

Service Functions Located at NCRVE Subcontract Sites

Technical Assistance for Planning and Evaluation. *Gary Hoachlander, Berkeley/MPR Associates*

This project will offer technical assistance to the Clearinghouse (see above) as well as all three levels of public governance through:

the development and maintenance of a Center data library (e.g., HSB, NLS-72, Project Talent, NAEP);

assistance in designing assessments and evaluations of large-scale programs and projects (e.g., for the Southern Growth Policies Board); and

assistance to the Clearinghouse (see above) in customizing responses to client-generated requests.

Center-Wide 50-State Survey. *Jeannie Oakes, The RAND Corporation; W. Norton Grubb, University of California at Berkeley; Tim Wentling, University of Illinois; and Curtis Finch, Virginia Polytechnic Institute and State University*

This two-year project will provide "core" information about the conduct of vocational education in each state. The results will contribute to both the Center's ongoing R&D and service functions.

Forum for Goal Formation in Vocational Education. *Sue E. Berryman, Teachers College, Columbia University; George Copa, University of Minnesota; Thomas K. Glennan, The RAND Corporation*

This multi-year project will feature a series of one-day meetings with the objectives of 1) synthesis and consensus-building within the vocational education community concerning implications of research for vocational education; and, 2) to extend this consensus to government and other public and private entities with a stake in vocational education. Membership in these forums will favor the practitioner and will be balanced between the public and private sectors.

Forum on Equity for Special Populations. *Al Phelps, University of Illinois*

This project will develop a conceptual framework—including specifying standards and criteria—for assuring access and equity to special populations. This framework will be developed by a series of seminars and symposia held over several months. Membership in these forums will include project staff from NCRVE-sites, and individuals selected from the Center's Resource Roster.

Relationships Between Vocational Education and the Job Training Partnership Act. Principal Investigators: *W. Norton Grubb, University of California at Berkeley Gary Hoachlander, Berkeley/MPR Associates*

This project will examine the current relationships between JTPA programs and vocational education, especially at the postsecondary level and propose policy alternatives for Congressional consideration.

Technical Assistance for Special Populations. Principal Investigators: *Allen Phelps and Carolyn Maddy-Bernstein, University of Illinois*

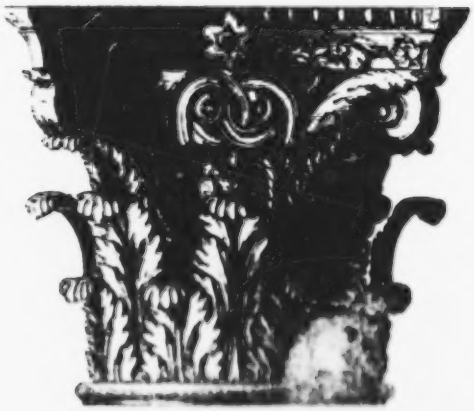
The Technical Assistance for Special Populations (TASP) function is providing professionals and policymakers with an array of services designed to assist in the improvement of vocational education programs for special needs youth and adults. Selected services focus on two critical themes: strengthening the transition of special needs learners to workplaces and continuing education settings; and examining federal and state policy options for the improvement of special needs programs and services.

In-Service Education. Principal Investigator *B. June Schmidt, Virginia Polytechnic Institute and State University*

Providing a comprehensive and effective program of in-service education activities is central to the Center's mission of integrating research and practice. Conducting effective in-service activities is essential to insuring that new knowledge about vocational education practice and policy has substantive impact upon vocational education programs nationally. This project will result in a paper which relates the most current research on effective in-service activities to vocational education.

Leadership Development in Vocational Education. *Principal Investigator: Jerome Moss, University of Minnesota*

Vocational education must begin its own transformation if it is to remain a strong form of education in the new environment. A paper will be prepared which (a) makes explicit a clarified concept of leadership development in vocational education, (b) proposes some of the means (activities) that facilitate the development of leaders, and (c) suggests lines of inquiry designed to strengthen the theoretical bases for and programmatic efforts in leadership development.



NATIONAL

CENTER

FOR RESEARCH IN

VOCATIONAL

EDUCATION

University of California at Berkeley

Subcontractors:

The University of Illinois

The University of Minnesota

The Rand Corporation

Teachers College,
Columbia University

Virginia Polytechnic Institute
and State University

THE NATIONAL CENTER FOR RESEARCH IN VOCATIONAL ED

What Is the National Center for Research in Vocational Education?

The National Center, located at the University of California at Berkeley, is a resource for research and exemplary practice in vocational education. Designed as a *change agent* to help revitalize the field, the Center is a group of nationally recognized social science scholars who hold a deep commitment to the vocational education community. The Center is a national institution with an active program of basic and applied research. The Center will also offer an extensive array of services to its clients across the country. The University of California at Berkeley will operate the Center with the assistance of five sub-contractors: the University of Illinois; the University of Minnesota; the RAND Corporation; Teachers College, Columbia University; and Virginia Polytechnic Institute and State University. The presence of the Center or one of its sub-contractors in nearly every region of the country places the operation in direct touch with the enormous diversity of the labor markets in the United States. It also closely connects the Center with the practitioners it serves. The diversity of research and outreach talent is a strength of the Center as it focuses the complementary talents of six institutions on the challenging task of accomplishing the Center's mission.

What Is the Center's Mission?

Simply put, it is to rethink what vocational education should be and how it can best be delivered. It is to contribute to the revitalization of vocational education so it can give all citizens, of all ages, the skills they need for successful, long-term employment. To accomplish this, we must reintegrate vocational education and educators into the mainstream of educational theory and practice. We must find ways to make vocational programs sensitive to rapid changes in the economy and in educational needs. We must help vocational education anticipate future changes so it can shape debates over the role of education rather than merely react to them. Our audience is *all educators*, not just those who define themselves as vocational educators. It is also *all students*, not just those in traditional vocational education programs. We reject the notion of an implicit "occupational ceiling" for those who study in vocational programs: Lawyers and physicians also receive work-related training. Indeed, we believe that all students and all employers will be better served by an integrated view that combines theory and practice, the "academic" and the "vocational." Our goal is to make this new vision of work-related education a reality.

Why Does Vocational Education Need Revitalizing Now?

The field literally needs a new lease on life. For vocational education, these are both the best and worst of times. The United States spends more than $15 billion a year on its public and private vocational programs. Both the variety of institutions offering vocational training and the range of training they offer have mushroomed. At the same time, however, the emphasis on academic excellence has squeezed vocational education out of many curriculums. Some large employers, who once enthusiastically supported vocational education, complain that it has lost its value in a rapidly changing world. Many vocational programs operate at a commanding standard of excellence, but in other cases, alas, vocational education has become a stepchild — *a second-class education for second-class students.* We want to shatter that latter image while helping to build upon the strengths that exist in the vocational community. And, in the process, we want to help build a system of work-related education that rightly commands the same esteem as academic schooling.

How Does This New Vision of Vocational Education Affect the Center's Work?

The most important effect is *integration*. Vocational education has traditionally been separate — from academic education, from training programs outside the schools, and from professional training. It has even been separate from work because it didn't keep up with changing occupations and technologies. That separateness has been very counterproductive. But if you view vocational education as work-related training that takes place in classrooms and in the workplace, is accessible to both teenagers and mature workers, and teaches skills to both nurse's aides and physicians, then this vision suggests many ways to eliminate separateness. We can integrate academic and vocational course materials, integrate work into the vocational curriculum, include employers in planning and conducting vocational programs, integrate vocational education with professional education and job training, integrate program evaluation with the study of exemplary programs, integrate research and practice.

What Is the Center's Research Agenda?

If our mission is to revitalize vocational education — to help it respond to changing conditions — then our research programs must look at the most crucial elements of change and identify ways for vocational education to respond. The six issue areas of our research agenda reflect our strategy for doing that.

▶ Context, Goals, Planning, and Evaluation

To define the goals of vocational education more clearly, we're examining how both the nature of work and the demographic characteristics of students have changed. We are also investigating how different forms of learning (both formal and informal) affect economic outcomes over a worker's life.

▶ Curriculum and Instructional Methods

We must translate the goals we've defined into practice. We're identifying ways to modernize the content of vocational programs to help them respond rapidly to changing economic and demographic conditions. For example, by helping vocational education programs integrate academic problem-solving skills into their curriculum, we can help them provide flexible, "durable" training that can be transferred and transformed as workers' opportunities change. By marrying the academic and the vocational, we can give students over the whole range of abilities the opportunity to learn abstract concepts in a practical setting. This marriage also promises to offer all students a wider range of career choice than they now have. At the end of such secondary schooling, students could choose to work, to seek further occupational training, or to enter four-year colleges and universities.

▶ Vocational Education for Special Populations

In view of changing demographic conditions, a growing portion of those needing vocational training will also need special help to benefit from it. We're looking at ways to improve existing programs for these special populations — students with limited skill in English, minorities and low-income students, the handicapped, teenage parents, women seeking access to a broader range of occupations. If these programs successfully blend theory and practice,

they too can provide students with choices they have previously lacked. These students can also gain access to post-secondary education or to superior jobs after completing a high school program.

➤ Personnel Development

We can't make vocational education more responsive to changing conditions without reforming the preparation of vocational education teachers. We're studying the supply and demand for vocational teachers, evaluating the appropriateness of current training programs. We're also investigating ways to bring the education of vocational educators into the mainstream of teaching reforms.

➤ Delivery Systems

Vocational training happens in many places outside high schools and community colleges. We're looking into a wide variety of occupational preparation, asking how effective the programs are and how they relate to training programs in the traditional education system. For example, to help us learn more about the training needed by a flexible workforce, we are conducting industry-wide studies. These studies focus not on job-specific skills, but on the functioning of the industries in which those skills are embedded. We are also investigating the ways individuals in those industries gain additional education and training.

➤ Governance and Policy

Work on this issue draws on all the rest of the Center's research because all reforms depend on appropriate governing mechanisms and effective policies. We're examining the current "system" of federal, state, and local policymaking in secondary and postsecondary vocational education. In our studies we are paying particular attention to cooperation and competition among the different institutions that provide vocational education.

What Else Does the Center Do Besides Research?

As a national resource, the Center clearly has important service functions, but here too the watchword is integration. We intend to perform certain services at the sites of the subcontractors: Leadership Development at the University of Minnesota, Inservice Training at Virginia Tech, and Technical Assistance for Special Populations at the University of Illinois. Others, such as the operation of the Center Clearinghouse and other Dissemination functions, Technical Assistance for Planning and Evaluation, JTPA and Vocational Education coordination will be conducted at Berkeley. All services will be performed as an integral part of the six issue areas on our research agenda. We believe that the Center's audience has valuable knowledge of its own. Its members should be active participants rather than passive consumers of our work. To be sure that information flows both ways, we are building networks of practitioners. These networks will enable experienced and enthusiastic teachers and administrators to share their knowledge and commitment with the broader teaching community. We know that revitalizing vocational education will require — and deserves — the full power of our combined energies.

Where Can I Get More Information About the Center?

For more information about the National Center for Research in Vocational Education, call the Center's Hot Line:

(415) 642-4004, or contact:

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This publication was published pursuant to a grant from the Office of Vocational and Adult Education, U.S. Department of Education, authorized by the Carl D. Perkins Vocational Education Act.

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